Chapter IV

PROBLEM AND HYPOTHESES
CHAPTER 4

PROBLEM AND THE HYPOTHESES

4.1. Study of Individual difference
4.2  Some basic issues
4.3  Objectives of the present study
4.4  Problem
4.5  Hypotheses
CHAPTER 4

PROBLEM AND THE HYPOTHESES

4.1 Study of Individual Differences

The scientific study of individual differences goes back to the last two decades of the nineteenth century, when James McKeen Cattell devised the mental tests in 1880. Francis Galton applied these mental tests for studying the individual differences in various motor, psychomotor and mental tasks. The focus of the study of individual differences was initially on mental abilities, viz. intelligence. But later with the development of intelligence and aptitude tests, the field of study of individual differences was widened to include aptitudes and achievements.

It was observed that even the individuals with equal IQ performed differently, some were fast learners whereas some were slow learners. The psychologists were interested therefore in studying such problems. The individuals differ not only in their mental abilities but on a number of personality dimensions which may affect their performance. The idea of studying individual differences in personality characteristics got the impetus after the first world war. Initially the attention of personality psychologists focused on a few personality dimensions viz. anxiety, achievement motivation, extraversion - introversion etc. After the second world war, the psychologists took up even the narrow-band personality dimensions like repression-sensitization, cognitive styles, etc. These and other dimensions are being constantly experimented upon today and their relationship with
performance is also being analysed carefully. It will not be an
exaggeration to say that anxiety is the most important dimension
of personality which has been extensively studied and related to
performance through experimental work.

4.2. Some Basic Issues

A continual problem in studies investigating the effects of
individual differences on learning is the possibility that a specified
individual difference variable may erroneously appear to affect
learning because it is related to some second variables that actually
does not affect learning. Grice (1955) and Kerrick (1955) both reported
that the MAS scores of American Air Force basic trainees were negatively
and significantly correlated with a variety of measures of intelligence.
However, several other studies (e.g. Dana, 1957; Klugh and Bending,
1955; Spielberger, 1958) failed to find any relationship between
anxiety and intelligence. At least part of the difference in results
is probably attributable to the mean intellectual ability levels
of the samples used: the studies reporting no relationship usually
used college students. Spielberger (1958) obtained empirical evidence
that negative correlations between anxiety and intelligence were
more prevalent in samples containing a sizeable proportion of subjects
with low ability. Since the great majority of studies investigating
anxiety differences in learning have used college students as subjects,
it is unlikely that there was a serious compounding of anxiety and
intelligence in most of the published literature.
Within general framework of the Spence-Spence model, there is a second aspect to the relationship between anxiety and intelligence. As Spielberger noted (1966): "Materials of average difficulty may actually be quite easy for bright students: for less able students, such materials might be extremely difficult and in some cases, beyond the students' learning capacity. Thus, task difficulty would seem to depend on both the intrinsic complexity of the materials to be learnt and the intellectual ability of the student".

A reasonable prediction is that the detrimental effects of high anxiety on complex, competitive, tasks would be attenuated in the case of highly intelligent subjects. Spielberger (1966) considered the effects of anxiety on complex learning task (academic achievement) and found that high-anxiety subjects obtained poorer grades than low-anxiety students in middle range of ability. However, among the cleverest of the students, there was some evidence that high anxiety increased academic achievement. The most appropriate interpretation of the finding is nuclear. While Spielberger argued that high ability reduces the number of competing erroneous responses which are elicited, it seems equally plausible to assume that high ability reduces the anxiety experienced in difficult learning situations. Spielberger has extended his findings to paired-associate learning (Gaudry-Spielberger, 1970) where he found that early in learning, high anxiety facilitated performance for intelligent subjects and impaired performance for dull subjects relative to their low-anxiety counter-parts.
There are few more issues raised by M. W. Eysenck in relating anxiety to performance. Research comparing the effects of trait anxiety has been deficient in a number of respects:

1. The notion of task-difficulty is not defined precisely, which seems a serious omission in view of the fact that one task can be more difficult than another in several different ways, so that it is impossible to identify the salient difference or differences.

2. There are problems of interpretation even when the "easy" and "difficult" tasks are selected carefully; for example, the easy task requires processes A, B and C or the difficult task requires processes A, B, C and D, it would be tempting to attribute any differential effect on the two tasks solely to process D. However, this would necessitate the strong (and often erroneous) assumption that process A, B and C are all unaffected by the introduction of the additional process D.

3. Virtually all the studies described in the literature have relied extensively on measures of overall performance. It seems highly probable that most tasks involve a number of separate processes, and the reliance on overall performance measures is difficult to justify. It means that there is no direct information about the relative contribution of each of the component processes to overall level of performance. As a consequence, we cannot identify unequivocally the process or processes adversely affected by anxiety.
4.3. Objectives of the Present Study

Gaudry and Spielberger (1971) reported that in simple learning tasks high anxiety is expected to facilitate the performance of the subjects, irrespective of their intellectual abilities. The relationship of anxiety, intelligence, performance and learning has been studied in India and abroad, very few studies have been conducted to find out the interactive effects of anxiety and intelligence on performance especially in India. Looking at the dearth of literature, the present study was undertaken with the following objectives:

1. To identify separately the effect of anxiety and intelligence on the performance of junior college students on two-hand co-ordination task.

2. To determine separately the effect of anxiety and intelligence on the performance of cognitive task.

The present study therefore is planned to examine the effect of personality dimension namely state and trait anxiety and the mental ability variable namely, intelligence. The investigator is also interested in analysing the interactive effects of anxiety and intelligence.
4.4 Problem

It is found that the effect of anxiety on performance depends upon the type of task. So the investigator selected two different tasks viz. the perceptual-motor task and the cognitive task for study. To sum up then, the problem of the present investigation is to study the effects of State-Trait anxiety and Intelligence on perceptual-motor and cognitive performance. The investigator feels that this may give her a clear picture as to whether the State-Trait anxiety and intelligence will affect performance in perceptual task and cognitive task similarly or differently.

4.5. Hypotheses

The investigator has, therefore, formulated the following hypotheses:

1. The high anxious subjects will be better in performance than the low anxious subjects on single task, whereas low anxious subjects will be better on double task in perceptual-motor performance.

2. In cognitive task, the low anxious subjects will be better than the high anxious subjects.

3. The performance of high intelligent subjects will be better than the low intelligent subjects on perceptual-motor as well as on cognitive task.
4. The difference between the performance of high intelligent and low intelligent subjects will be more pronounced in the cognitive task than in perceptual-motor task.

5. State anxiety is a better predictor of performance than trait anxiety in perceptual-motor task and cognitive task.